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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Akiko Hirao

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22852

7590

07/01/2008

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EXAMINER

PSITOS, ARISTOTELIS M

ART UNIT

PAPER NUMBER

2627

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/796,342	Applicant(s) HIRAO ET AL.	
	Examiner Aristotelis M. Psitos	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 6-23 is/are pending in the application.
- 4a) Of the above claim(s) 10-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,6-9,13-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicants' response of 4/15/08 has been considered with the following results.

MISCELANEOUS

The examiner has placed the patent # with respect to Takeuchi on the accompanying 892.

The title of the invention is no longer object to.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1, 6-9, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Horimai et al (cited prior art by applicants'), or alternatively WO99/44195 (this document is not being provided rather its *US equivalent document 7130092*) and either further considered with Moerner et al or Bai et al.

As noted in Horimai et al, with respect to the description of figure 27, a holographic record medium having the structural components as recited is depicted.

Alternatively the WO document – see figures 41+ in the corresponding US equivalent document also depicts such a structural record medium.

Although not specified as to what the holographic material is, the reference to Moerner et al discloses the ability/ use of appropriate materials for optical (holographic) records. Alternatively, the Bai et al reference also discloses appropriate materials for holographic recording.

It would have been obvious to modify the base system of Horimai et al with the above teachings from either Moerner et al or Bai et al; motivation is to use existing materials as the recording layer in Horimai et al for their desired properties

With respect to the limitations as recited in claim 1:

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With respect to the newly introduced phrase – “contains regions of differing optical density”, as interpreted by the examiner since optical density is a function of the amount of radiation/illumination upon a record material as well as the “servo region” and “data region”.

As noted in the base references, there are both such regions and hence the examiner concludes that this limitation is present in the above combination of references. This limitation is found in all of the independent claims and is met for the same reason as stated herein. The examiner again concludes that since the recording material – i.e., photorefractive material(s) are taught by either of the secondary references, that the ultimate paragraph in claim 1 (and similar limitation(s) in the remaining independent claims) is present and met.

a) lines 6-8, such are inherent present, i.e., when a hologram is recorded such limitations are present in the above combination of references.

b) lines 10-12, the optical density appropriately decreases. The examiner interprets this as a desired inherent result of the recording structure as defined by the claims. And as such structure has been met by the above combination of references, must be present as well.

With respect to claims 6 and 7, such limitations are inherently present.

Since claim 8 is substantially a duplicate of claim 1, it is also met for the reasons stated above.

Claim 9, is met – see the discussion above with respect to claim 1.

The method limitations of claims 13 and 14 are met when the above record medium is recorded upon since appropriate elements, such a light sources, lens, etc. much be present in order to achieve the desired recording of information upon the record medium.

Furthermore, the relationship described in the remainder of these claims is merely a mathematical expression defining the optical density in relationship to various system parameters. These system parameters, i.e., optical density of the surface, refractive index of the recording layer, numerical aperture of a lens, spot size radius, and distance from the light incident surface MUST exist. Hence, the description merely describes what is already present.

Response to Arguments

Applicant's arguments filed 4/15/08 have been fully considered but they are not persuasive.

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As indicated, the examiner interprets the claims as stated above.

With respect to the argument of the optical density – as noted by the cited Martin reference, optical density is a function of transmittance, and such is - as further noted by Hayashi da et al a function of wavelength. The examiner concludes that optical density is NOT limited to applicants' definition. Furthermore, applicants' disclosed formulas also include various parameters, including numerical aperture, spot radius to name a few. Hence the examiner is not persuaded by applicants' arguments.

2 Claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claims 1, 8,9,13 and 14 as stated above, and further in view of the acknowledged prior art.

These claims are drawn to particular holographic recording method/ i.e., “polarized collinear”, and as such applicants' have acknowledged such a method as being well known in the prior art – see paragraph 7 in the equivalent PGPUB document when it refers to JP document 2002-123949.

It would have been obvious to modify the base system as relied upon above wrt the parent claims and modify such by the above acknowledged prior art recording method, motivation is to use existing recording methods already present in the field of endeavor and hence build upon the past.

3. Claims 1,6,7,8,9,13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amble et al further considered with Cumpston et al .

As noted in figures 1-8 an optical holographic system is depicted wherein a holographic record medium having its recording layer facing the light source, i.e., incident side is shown. Furthermore, there is a servo layer/region and a reflection layer is present.

Further attention is also drawn to col. 9 starting at line 20 (with reference to figure. 3G).

As noted therein the recording material may have a plurality of data layers/planes.

Starting at col. 9 line 50, the recording material can be any the various photopolymers etc. as detailed therein.

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Cumpston et al discloses an appropriate holographic recording material exhibiting various absorptions over the depth of the recording material - see the abstract thereof for instance.

It would have been obvious to modify the base system of Amble et al with such materials as taught by the secondary reference, motivation is as taught by both documents, i.e., the variations of the absorption over the depth of the record material

With respect to the decreasing optical density as found in the ultimate paragraph of claim 1, this must inherently follow from the structure positively recited in the claim itself and as interpreted by the examiner the variation in the absorption level is so interpreted.

Response to Arguments

Applicant's arguments filed 4/15/08 have been fully considered but they are not persuasive.

The Cumpston et al reference – see for instance the disclosure starting at col. 3 line 64 continuing till col. 6 line 38 refers to various types of photopolymer materials exhibiting non-linear absorption. Such can be used in holographic recording media, wherein servo information exhibits one level of absorption while the recording media itself exhibits another level. Such various levels are analogous to having various optical densities, since optical density is a ratio of transmittance of a material wrt a certain illumination light/wavelength/photons.

The examiner concludes that the above combined references meet the claimed limitations. There is no need for a reference to recite the same terminology as relied upon by an applicant - see *In re Bode* 193 USPQ 12.

4 Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 1 as stated in paragraph 3 above, and further in view of Takeuchi et al.

With respect to claim 3, this further limitation wrt the plural recording layers having the high and low optical density as recited is considered merely an alternative record structure.

That is, the base reference to Amble et al indicates that the recording information can be found through a plurality of data locations/planes/layers.

Takeuchi et al teaches the ability of having a laminated holographic recording structure.

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The overall ability of therefore of having a plurality of recording layers wherein the higher optical density layer is closer to the incident side of the light source, then followed by a layer of lower/low optical density is seen to follow.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are not persuasive for the reasons stated above with respect to that provided in paragraph 3 above.

5. Claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claims 1, 6,7,8,9,13 and 14 as stated in paragraph 3 above, and further in view of the acknowledged prior art.

These claims are drawn to particular holographic recording method/ i.e., "polarized collinear", and as such applicants' have acknowledged such a method as being well known in the prior art – see paragraph 7 in the equivalent PGPUB document when it refers to JP document 2002-123949.

It would have been obvious to modify the base system as relied upon above wrt the parent claims and modify such by the above acknowledged prior art recording method, motivation is to use existing recording methods already present in the field of endeavor and hence build upon the past.

Claim Rejections - 35 USC § 103

Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 1 as stated in paragraphs 1 and or 3 above, and further in view of Hegel et al

With respect to the material recited in claim 22, see the discussion with respect to the Irgacure 784 starting at col. 6 line 4. Irgacure 784 is the trade name for the materials recited in claim 22.

The pbw range is also met by the above document.

It would have been obvious to modify the base systems as recited above in either paragraph 1 or 3 and further modify such to include the above material, since such a material is known in this environment for holographic recording. Selection of such is merely an obvious choice from a plethora of holographic recording materials available to those of ordinary skill in the art predicated upon such mundane considerations as cost, availability, reliability, etc.

The remaining Conclusion

The remaining cited art is illustrative of Otaki et al - materials for holographic records, Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristotelis M. Psitos whose telephone number is (571) 272-7594. The examiner can normally be reached on M-Thur: 6:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Aristotelis M Psitos
Primary Examiner
Art Unit 2627

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